

PROBLEM SOLVING ACTIVITY: SUGAR CANDY GREENHOUSE GASES



The Earth is wrapped in a blanket of air called the **atmosphere**, which is made up of several layers of gases. The sun is much hotter than the Earth and it gives off rays of **heat** (radiation) that travel through the atmosphere and reach the Earth. The rays of the sun warm the Earth, and heat from the Earth then travels back into the atmosphere. Gases in the atmosphere stop some of the heat from escaping into space.



These gases are called **greenhouse gases (GHGs)** and the natural process between the sun, the atmosphere and the Earth is called the **Greenhouse Effect**, because it works the same way as a greenhouse. The windows of a greenhouse play the same role as the gases in the atmosphere, keeping some of the heat inside the greenhouse.

The atmosphere has a number of gases in tiny amounts, which trap the heat given out by the Earth. To make sure that the Earth's temperature remains constant, the balance of these gases in the atmosphere must not be upset.

The GHGs are very important and are:

- ✚ **Water vapor (H₂O)** - occurs naturally in the atmosphere.
- ✚ **Carbon dioxide (CO₂)** - produced naturally when people and animals breathe. Plants and trees absorb carbon dioxide and volcanoes also produce this gas.
- ✚ **Methane (CH₄)** - comes from cattle as they digest their food. The gas also comes from fields where rice is grown.
- ✚ **Nitrous oxide (N₂O)** - when plants die and rot, nitrous oxide is produced.
- ✚ **Ozone (O₃)** - occurs naturally in the atmosphere.
- ✚ **CFC-11 (CCl₃F)** - a man-made chemical known as "Freon" that was used in refrigeration and air conditioning and as a cleaning agent for electronics.

DATA TABLE: GREENHOUSE GAS MODELS

GREENHOUSE GAS	RECIPE	FORMULA	MODEL
WATER VAPOR			
METHANE			
NITROUS OXIDE			
CARBON DIOXIDE			
OZONE			
CFC-11			